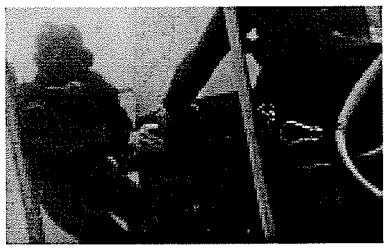
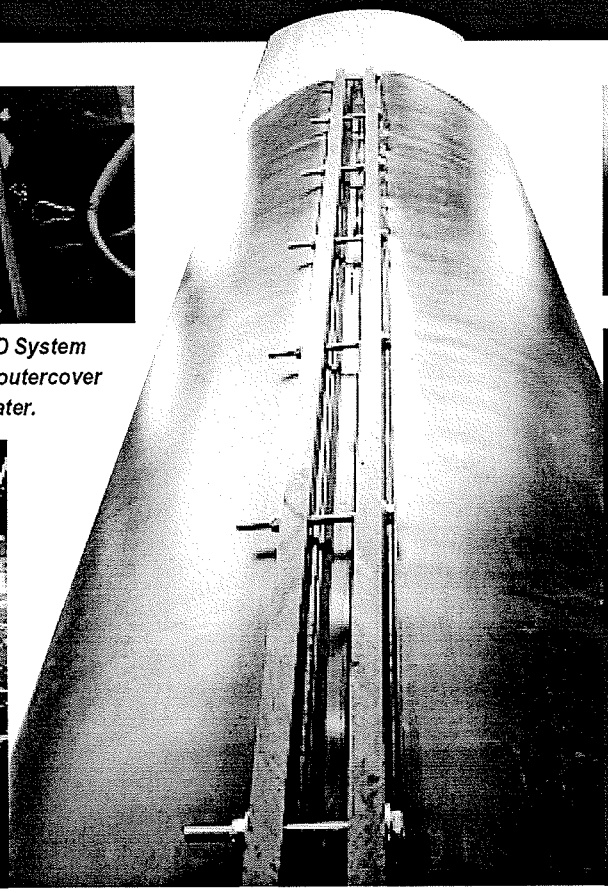
APPENDIX R

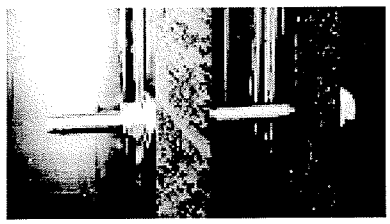
PRESERVATIVE MATERIALS

SeaShield Marine Systems



SeaShield Series 2000 HD System with a heavy duty HDPE outercover is easy to apply under water.





Features

- Minimal surface preparation required *(no abrasive blasting)*
- Fast and easy installation
- Can be applied underwater
- Proven seventy-year history of corrosion protection with petrolatum tapes
- One piece jackets
- High impact resistance in aggressive environments
- UV resistant
- Safe to apply and environmentally responsible
- Long maintenance-free service life

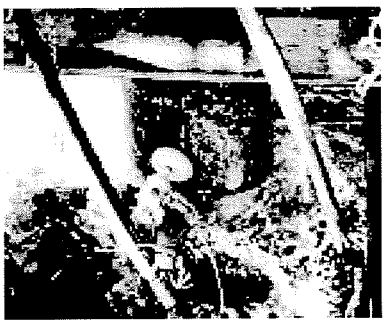
Series 2000 HD

Anti-Corrosion Protection System for Steel and Concrete Piles

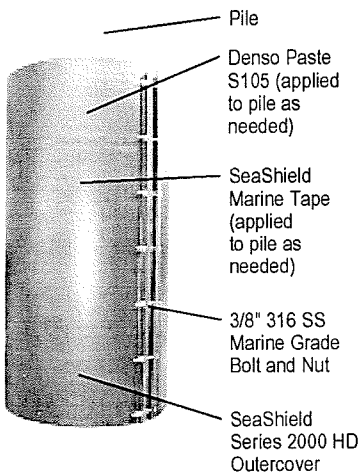
SeaShield Series 2000 HD System provides corrosion protection for steel and concrete piles. The system is ideal for aggressive inland and offshore environments. The Series 2000 HD System seals out oxygen and water effectively stopping corrosion on steel surfaces. The system also prevents spalling and corrosion of steel reinforcement in concrete piles. The Series 2000 HD System can be used on offshore platform legs, risers, wharf piles and exposed piping in the splash and tidal zones.

Denso®

DENSO NORTH AMERICA INC.



▲ *The components of the Series 2000 HD System can be applied under water with minimal surface preparation.* ▼



The SeaShield Series 2000 HD System stops corrosion by using a proven petrolatum-based tape. The SeaShield Marine Tape forms an anti-corrosion membrane by displacing water and forming a moisture-resistant bond. A tough outercover surrounds this component to protect against weathering and mechanical damage.

Denso Paste S105

Underwater primer used in severely pitted or corroded areas within the substrate as needed. It fills imperfections and passivates surface oxides.

Densyl Mastic

A flexible, putty-like caulking and filler material used to seal irregular shapes and other areas where tape may bridge. Common applications include pile/pilecap interfaces, brackets and flanges. Mastic seals against water and air intrusion and improves contours for tape wrapping.

SeaShield Marine Tape

Synthetic fiber-reinforced tape impregnated and coated with a specially formulated, petrolatum-based compound containing inert fillers, water displacing agents and wide spectrum biocides. The tape provides a long-lasting, anti-corrosion membrane for steel and concrete surfaces. Applied spirally, and with sufficient tension, SeaShield Marine Tape displaces water and develops a water resistant bond. It provides the primary corrosion protection in the SeaShield Series 2000 HD System.

SeaShield Outercover

A tough, ultraviolet-resistant outercover that provides mechanical protection against the elements and accidental impact. The size of the outercover and thickness of the jacket are customized to meet application requirements. SeaShield outercovers are secured with 316 SS marine grade stainless steel bolts and nuts.

For further details please refer to the Engineering Specifications for SeaShield Series 2000 HD.

"Series 2000 HD"

Specifications and Ordering Information

PACKAGING

Paste - 5.5 lb. tubs; 4 tubs per case
Mastic - 6 ea. 6.6 lb. blocks per case
Tape - 6 in. wide rolls, 33 ft. long; 12 rolls per case
Outercover - Custom Fabricated

APPLICATION SPECIFICATIONS

Contact Denso North America Inc. for complete application specifications or a no-cost, on-site evaluation of your application.

FOR ASSISTANCE

In Houston, Call: 281-821-3355 or
In Toronto, Call: 416-291-3435 for more information.

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A Member of Winn & Coales International

Amerlock 400

High-solids epoxy coating

Product Data

- VOC compliant
- High-performance general maintenance coating for new or old steel
- Cures through wide temperature range
- Self-priming topcoat over most existing coatings
- Can be overcoated with wide range of topcoats
- Compatible with prepared damp surfaces
- Compatible with adherent rust remaining on prepared surfaces
- 5 mils or more in a single coat
- Resists high humidity and moisture

Amerlock's low solvent level meets VOC requirements, reduces the chances for film pinholing and solvent entrapment at the substrate-coating interface, often a major cause of coating failure with conventional epoxies and lower solids systems. Amerlock 400 is available in a variety of colors, including aluminum, and therefore does not require a topcoat. For extended weatherability or special uses, a topcoat may be desired.

Typical Uses

Amerlock 400 is used in those areas where blasting is impractical or impossible. As a maintenance coating, Amerlock400 protects steel structures in industrial facilities, bridges, tank exteriors, marine weathering, offshore, oil tanks, piping, roofs, water towers and other exposures. Amerlock 400 has good chemical resistance to splash/spillage, fumes and immersion in neutral, fresh and salt water (see resistance table). Contact your Ameron representative for specific information.

Typical Properties

Physical

Abrasion resistance (ASTM D4060)	
1 kg load/1000 cycles	weight loss
CS- 17 wheel	102 mg
Impact resistance (ASTM D2794)	
Direct	24 in – lb
Reverse	6 in - lb
Moisture vapor transmission (ASTM F 1249)	
	4.49 g/m^2
Adhesion (ASTM D4541)	900 psi

Performance

Salt spray (ASTM B 117) 3000 hours	
Face blistering	None
Humidity (ASTM D2247) 750 hours	
Face corrosion, blistering	None
Immersion (NACE TM-01-69) fresh water I year	
blistering	None

Physical Data

Semigloss Finish

Color: Standard, Rapid Response, custom colors and aluminum

White and light colors may show yellowing on aging. Use ofAmercoat 861 with white or light colors will slightly discolor Do not use with 400FD cure. With white and light colors, 400FD cure will cause yellowing.

Yellow, red and orange colors w1llfadefaster than other colors due to the replacement of lead-based pigments with lead-free pigments in these colors

Components	2	
Curing mechanism: Solvent release and chemical reaction between components		
Volume solids (ASTM D2697 modified)		
400	83%± 3%	
400AL	88%± 3%	
Dry film thickness (per coat)	5-8 mils (125-200 microns)	
Coats	1 or 2	
Theoretical coverage	ftl/gal	ml/L
1 mil (25 microns)		
400	1331	32.6
400AL	1412	34.7
5 mils (12 5 microns)		
400	266	6.5
400AL	282	6.9
VOC	lb/gal	WL
400 mixed	1.4	168
mixed/thinned (1/2 pt/gal)	1.7	204
400AL mixed	1.0	120
mixed/thinned (11/2 pt/gal)	2.0	240
400FD mixed	1.2	144
mixed/thinned (1/2 pt/gal)	1.6	192

Temperature resistance,			wet		dry
	^{0}F	^{0}C	^{0}F	^{0}C	
continuous	100	38	200	93	
intermittent	100	38	350	177	

Flash point (SETA)	^{0}F	^{0}C
400 resin	131	55
400 cure	85	29
400FD cure	87	30
400AL resin	110	43
400AL cure	116	47
Arnercoat' 8	67	19
Amercoat 65	78	25
Amercoat 12	0	-18

Qualifications

USDA - Incidental food contact

NFPA - Class A

NSF Standard 61 - For use in drinking water; Amerlock 400 and 400FD - White, Ivory and RT- 1805 Blue, *Certain restrictions do apply.*

Chemical Resistance Guide

Environment	Immersion		Splash and Spillage		Fumes and Weather	
	400	400AL	400	400AL	400	400AL
Acidic			F	F	G	G
Alkaline			E	G	E	E
Solvents			G	G	E	E
Salt water	E	E	E	E	E	E
Water	E	E	E	E	E	E

F-Fair G-Good E-Excellent

**Contact your Ameron representative*

This table is only a guide to show typical resistances ofAmerlock 400 and 400AL. For specific recommendations, contact your Ameron representative representative for your particular corrosion protection needs.

Systems using Amerlock 400 or 400AL

1st coat	2nd Coat***	3rd coat
400	None	None
400	450HS Amershield-	None
400**	400	None
Dimetcotel 9, 9FT or 21-9	400	None
Dimetcote 9, 9FT or 21-9	400	None

***Water immersion.*

****For color contrast when 2 coats of400AL are used, 400AL red can be used asfirst coat.*

Recoat/Topcoat time minimum (hours)	^{0}F/^{0}C 90/32	70/21	50/10
400	8	16	30
400 with 1 pt 861	4	7	16
400FD	2	31/2	10
400AL	3	12	48
400AL with 1/2 pt 861	3	5	12

Recoat/Topcoat time @ 70^{0}F (21^{0}C)

System	Maximum time
400/400	3 months
400 with 861/400	1 month
400FD/400FD	2 weeks
400/Amershield or 450HS	1 month
400/5405	1 day
400FD/Amershield or 450HS	7 days
400 with 86 1/Amershield or 450HS	2 weeks

Note: If maximum time is exceeded, roughen surface. For topcoats (finish coats) not listed, see Product Data sheet for specific topcoat time limitations.

Application Data Summary

See Application Instructions for complete information on surface preparation, environmental conditions, application procedures and equipment. To obtain maximum performance, apply as recommended. Adhere to all safety precautions during storage, handling, application and drying periods

Surface Preparation

Coating performance is, in general, proportional to the degree of surface preparation. Abrasive blasting is usually the most effective and economical method. When this is impossible or impractical, Amerlock 400 can be applied over mechanically cleaned surfaces. All surfaces must be clean, dry and free of all contaminants, including salt deposits.

Application Data

Applied over steel, concrete, aluminum, galvanizing
Surface preparation
Steel: SSPC-SP2, 3, 7 or 10
Concrete: ASTM D4259 or 4260
Aluminum: Alodine^R, Alumiprep^R or light abrasive blast
Galvanizing: Galvaprep"l or light abrasive blast

Method: Airless or conventional spray. Brush or roller may require additional coats.

Mixing ratio (by volume) 1 part resin to l part cure

Pot life (hours) 861 Accelerator amount	Amerlock /mixed 5 gal	90/32	70/21	'F/'C 50/10	32/0
None	400	11/2	21/2	4	7
	400AL	31/2	51/2	10	15
	400FD	1	11/2	21/2	4
1/2 pt	400	1	11/2	21/2	4
	400AL	1	11/2	21/2	4
1 pt	400	1/ 2	1	11/2	2

Pot life is the period of time after mixing that a five-gallon unit of material is sprayable when thinned as recommended. Mixture may appear fluid beyond this time, but spraying and film build characteristics may be impaired

Environmental conditions

Product	Air and Surface Temperature
Amerlock 400 or 400 AL	40^0 to 122^{0}F (4^0 to 50^{0}C)
Amerlock with 861	20^0 to 122^{0}F (-6^0 to 50^{0}C)
Amerlock 400FD cure	20' to 122'F (-6' to 50^{0}C)

Surface temperatures must be at least 5^{0}F (3^{0}C) above dew point to prevent condensation. At freezing temperatures, surface must be free of ice.

Do not use A merlock 400AL on water damp surfaces. Do not use 400FD cure with 400-4L resin.

Drying time (ASTM D 1640) (hours)

861 Amerlock Amt /mixed 5 gal		120/49	90/32	**touch** ^{0}F/^{0}C 70/21	50/10	32/0	20/-6
None	400	11/2	41/2	9	28	96	NR
	400AL	1	4	12	36	96	NR
	400FD cure	1/2	1	2	8	24	48
1/2 pt	400	11/2	3	5	24	72	120
	400AL	1	11/2	21/2	5	10	24
1 pt	400	1	2	4	15	48	96
				through			
None	400	6	12	20	40	140	NR
	400AL	11/2	V/2	24	72	216	NR
	400FD cure	11/2	21/2	41/2	13	38	96
1/2 pt	400	3	6	10	30	96	180
.	400AL	2	4	9	24	48	120
1 pt	400	21/2	5	9	24	72	160

		Cure for immersion (days)					
None	400	2	4	7	21	NR	NR
	400AL	2	4	7	21	NR	NR
	400FD	cure1	2	3	7	21	NR
1/2 Pt	400AL	1	2	3	7	21	NR
1 pt	400	1	2	3	7	21	NR

Amercoat 861 Accelerator will slightly discolor Amerlock 400 white and other Amerlock light colors. Do not use 861 Accelerator with 400FD cure.

NR = Not recommended

Safety Precautions

Read each component's material safety data sheet before use. Mixed material has hazards of both components. Safety precautions must be strictly followed during storage, handling, and use.

This product is for industrial use only. Not for residential use in California

Warranty

Ameron warrants its products to be free from defects in material and workmanship. Ameron's sole obligation and Buyer's exclusive remedy in connection with the products shall be limited, at Ameron's option, to either replacement of products not conforming to this Warranty or credit to Buyer's account in the invoiced amount of the nonconforming products. Any claim under this Warranty must be made by Buyer to Ameron in writing within five (5) days of Buyer's discovery of the claimed defect, but in no event later than the expiration of the applicable shelf life, or one year from the delivery date, whichever is earlier. Buyer's failure to notify Ameron of such nonconformance as required herein shall bar Buyer from recovery under this Warranty.

Ameron makes no other warranties concerning the product. No other warranties, whether express, implied, or statutory, such as warranties of merchantability or fitness for a particular purpose, shall apply. In no event shall Ameron be liable for consequential or incidental damages.

Any recommendation or suggestion relating to the use of the products made by Ameron, whether in its technical literature, or in response to specific inquiry, or otherwise, is based on data believed to be reliable; however, the products and information are intended for use by Buyers having requisite skill and know-how in the industry, and therefore it is for Buyer to satisfy itself of the suitability of the products for its own particular use and it shall be deemed that Buyer has done so, at its sole discretion and risk. Variation in environment changes in procedures of use, or extrapolation of data may cause unsatisfactory results.

Thinner	Amercoat 8 or 65
Equipment cleaner	Thinner or Amercoat 12

Shipping Data

Packaging unit	2 gal	5 gal
cure	1 -gal can	2.5-gal can
resin	1 -gal can	2.5-gal can
Shipping weight (approx)	lbs	kg
2-gal unit		
400 cure	12.5	5.7
400FD cure	2.2	5.5
400 resin	13.7	6.2
400AL cure	2.1	5.5
400AL resin	11.0	5.0
5 -gal unit		
400 cure	31.8	14.4
400FD cure	31.2	14.2
400 resin	35.0	15.9
400AL cure	30.9	14.0
400AL resin	28.3	12.8

Shelf life when stored indoors at 40^{0}to 100^{0}F (4^0 to 38^{0}C)

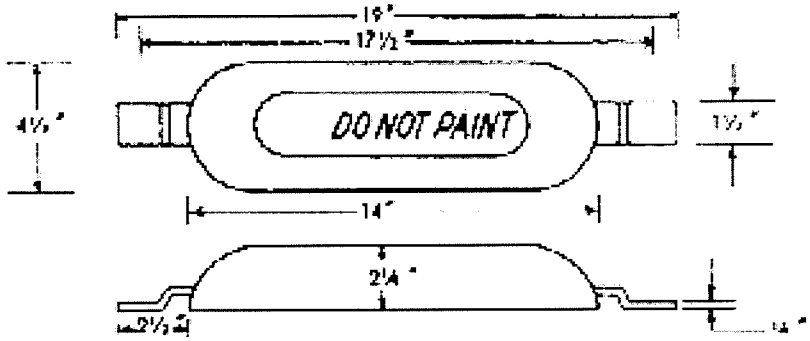
resin and cure	I year from shipment date

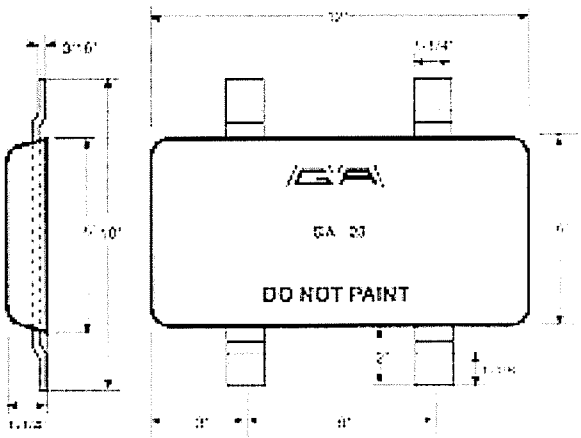
Numerical values are subject to normal manufacturing tolerances, color and testing variances. Allow for application losses and surface irregularities.

This mixed product is photochemically reactive as defined by the South Coast Air Quality Management District's Rule 102 or equivalent regulations.

Limitation of Liability

Ameron's liability on any claim of any kind, including claims based upon Ameron's negligence or strict liability, for any loss or damage arising out of, connected with, or resulting from the use of the products, shall in no case exceed the purchase price allocable to the products or part thereof which give rise to the claim. **In no event shall Ameron be liable for consequential or incidental damages.**





Examples of Typical Sacrificial Anodes Used to
Protect Submerged Steel Surfaces
(Specify Dow Corporation GALVALUM I or III Alloy)

08/26/03

PD